



Defense Science & Technology Budget & Investment Focus

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Deputy Director, Science & Technology Plans & Programs

DoD Science & Technology Mission



To ensure that the warfighters today and tomorrow have superior and affordable technology to support their missions, and to give them revolutionary war-winning capabilities.





A Focus on Revolutionary Advances

Stealth



Adaptive Optics and Lasers



GPS



Night Vision



Phased Array Radar





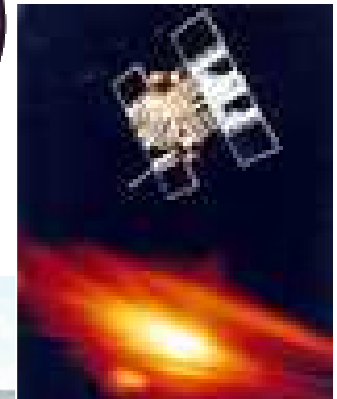
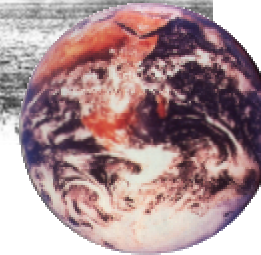
Strategic Environment

Global US Interests

Political - Economic - Humanitarian



Globalization of Technology

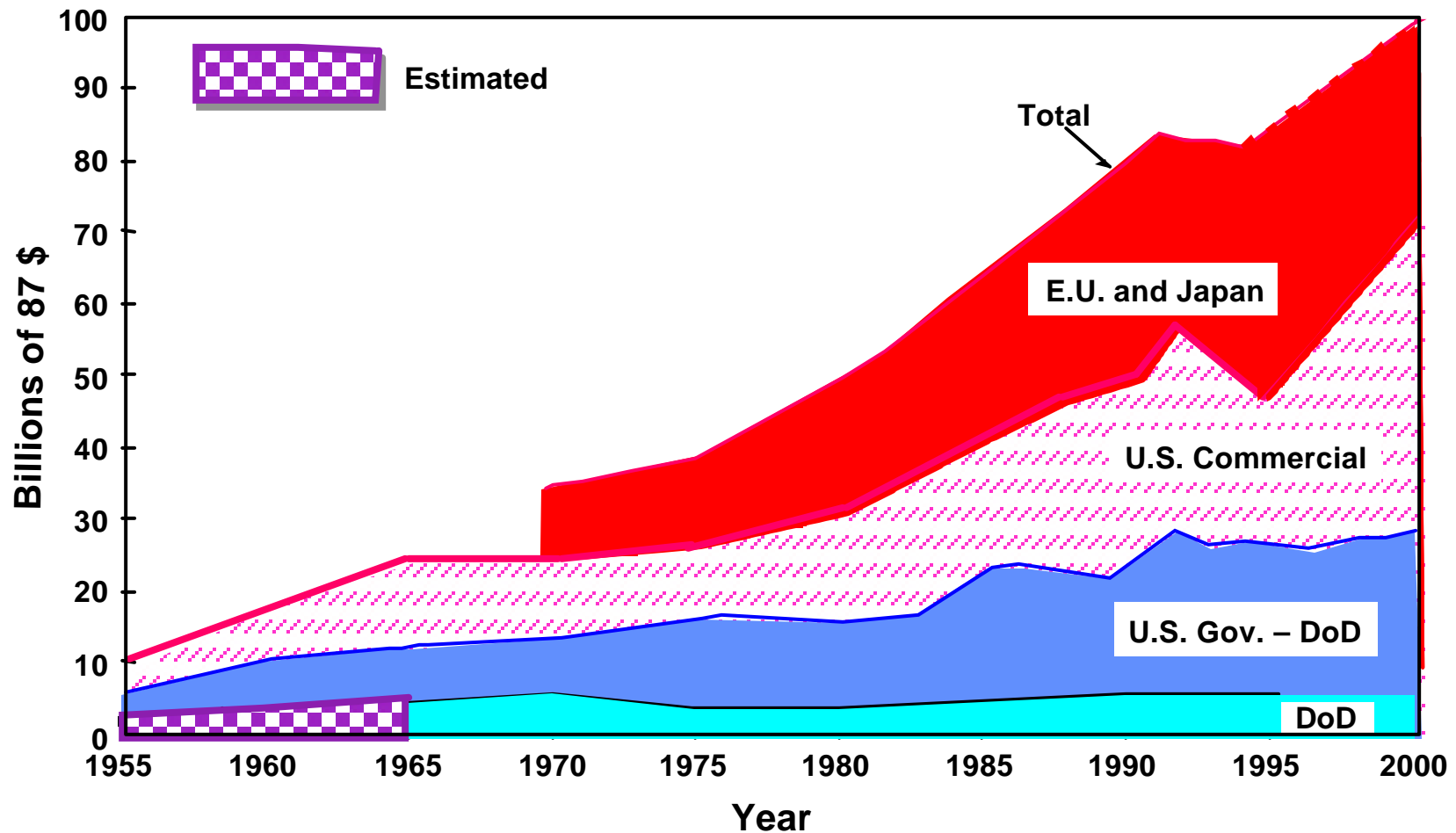


Asymmetric Threats

In any domain - Air, Land, Sea, Space or Information

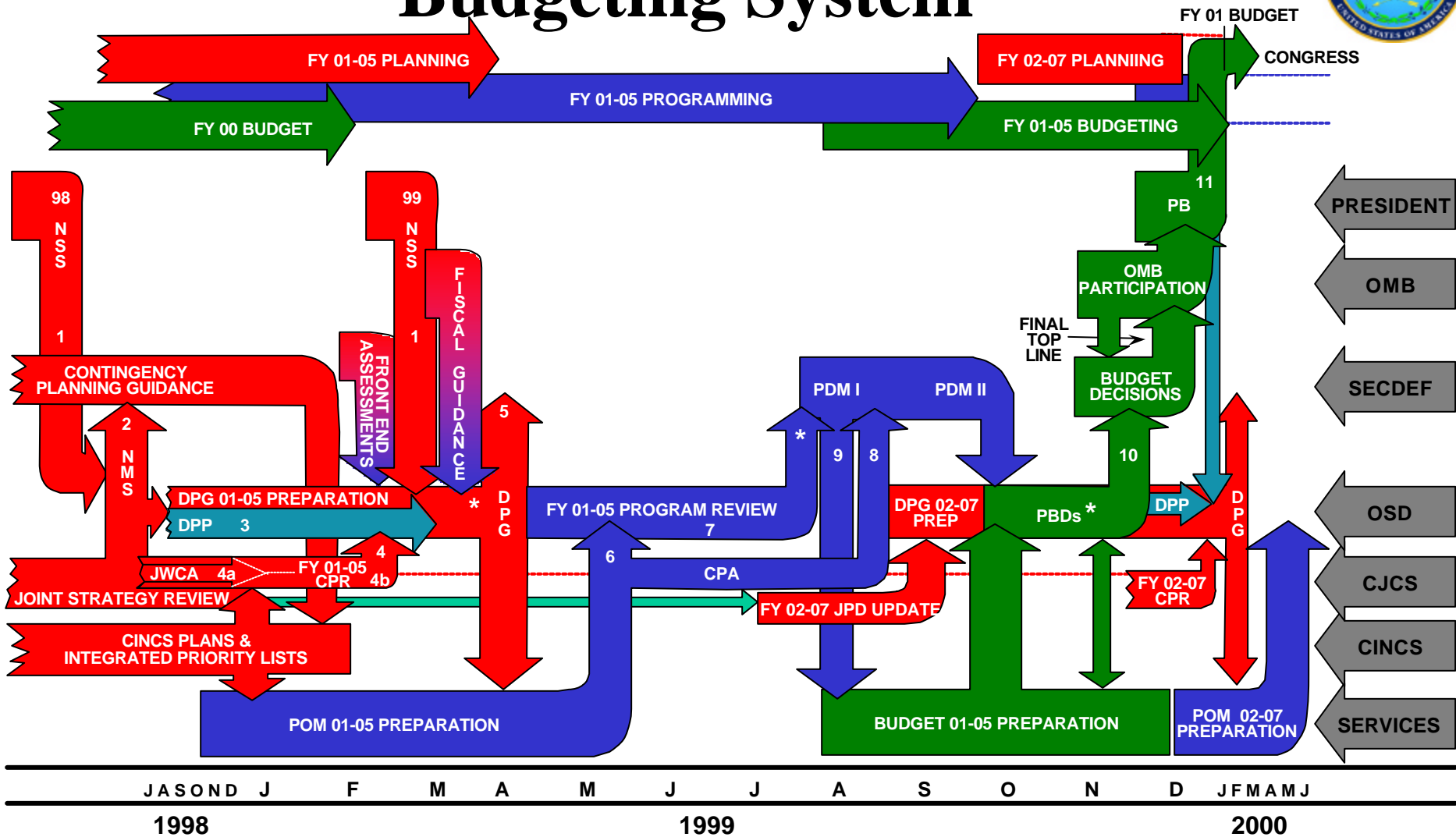


U.S. and Worldwide Research Base since WWII



Source: Report of the Defense Science Board Task Force on the Technology Capabilities of Non-DoD Providers; June 2000; Data provided by the Organization for Economic Cooperation and Development & National Science Foundation

Defense Planning, Programming & Budgeting System



1. National Security Strategy
2. National Military Strategy
3. Defense Program Projection
- 4a. Joint Warfighting Capabilities Assessment
- 4b. Chairman's Program Recommendations
5. Defense Planning Guidance

6. Program Objectives Memoranda
7. Program Review
8. Chairman's Program Assessment
9. Program Decision Memoranda

10. Program Budget Decisions
11. President's Budget

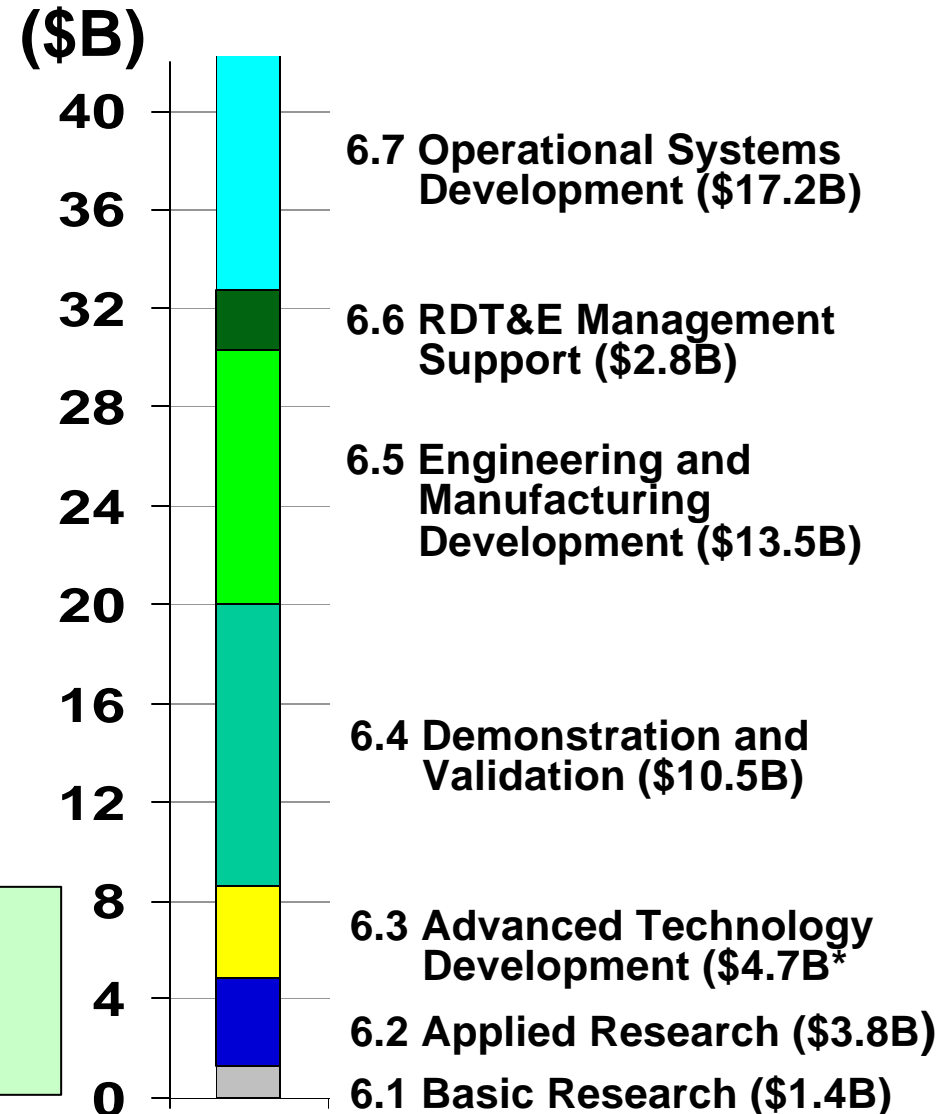
* Potential Defense Resources Board (DRB)/Expanded DRB



FY03 RDT&E Budget Request

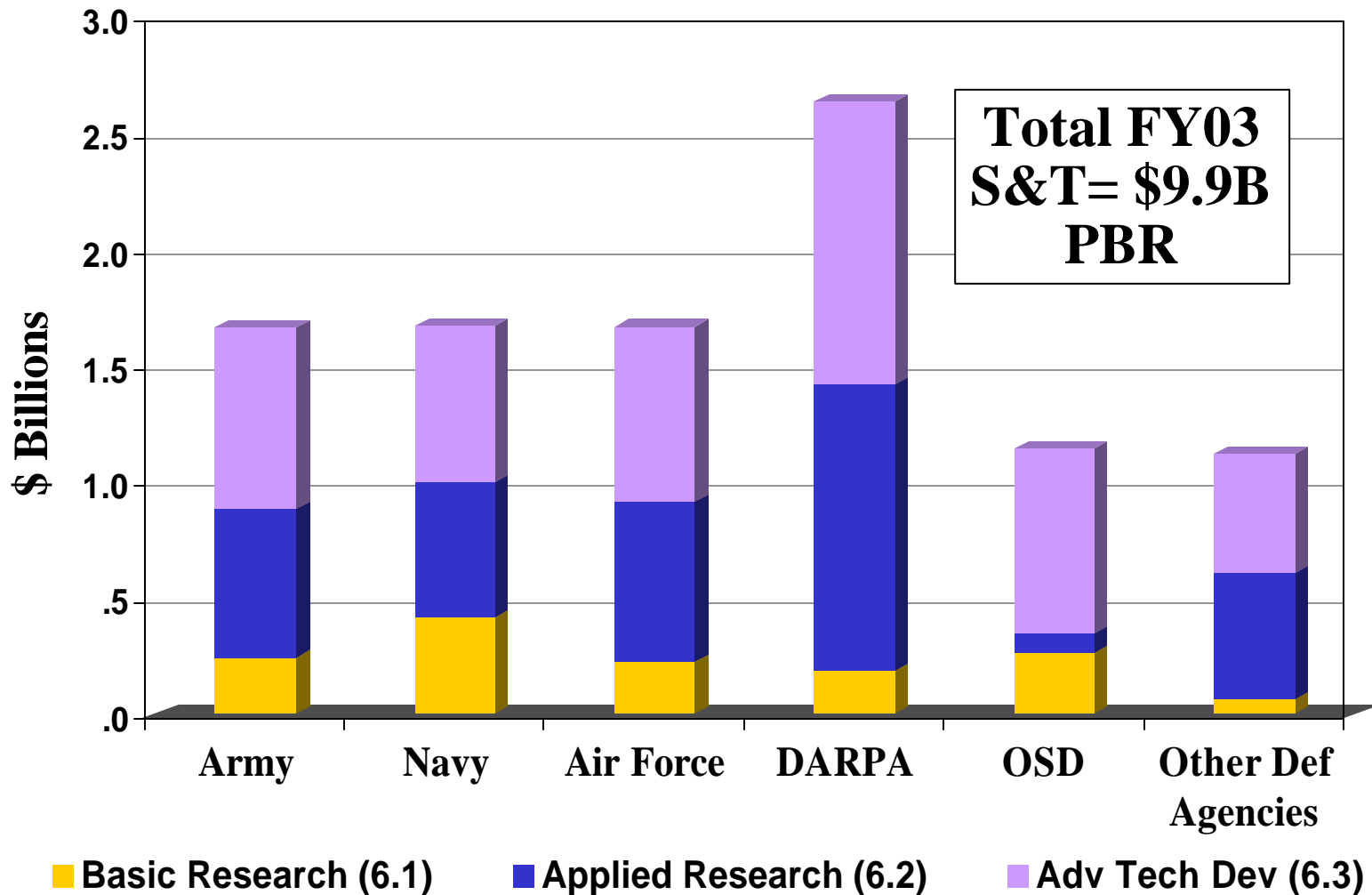
**FY03 RDT&E = \$53.9B
requested
(6.1 thru 6.7)**

**Science and Technology
(6.1 + 6.2 + 6.3 = \$9.9B)
19% of RDT&E**



* Includes \$213M allocated to combating terrorism S&T in DoD transfer account

FY03 Budget Request DoD S&T



* Includes \$213M allocated to combating terrorism S&T in DoD transfer account

S&T Requires Strong Partnerships

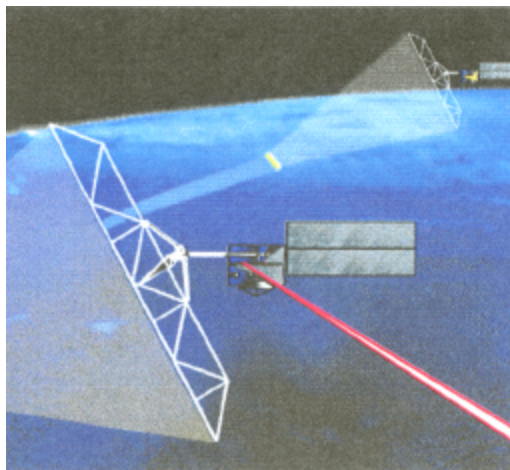


Link to the Warfighter



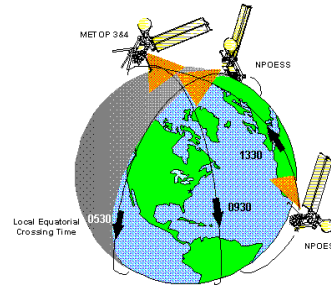
Service Labs

DARPA



High Risk, High Payoff

Expanded Resource Base



Interagency

New Ideas, Knowledge



Universities

Industries



Innovation, Transition

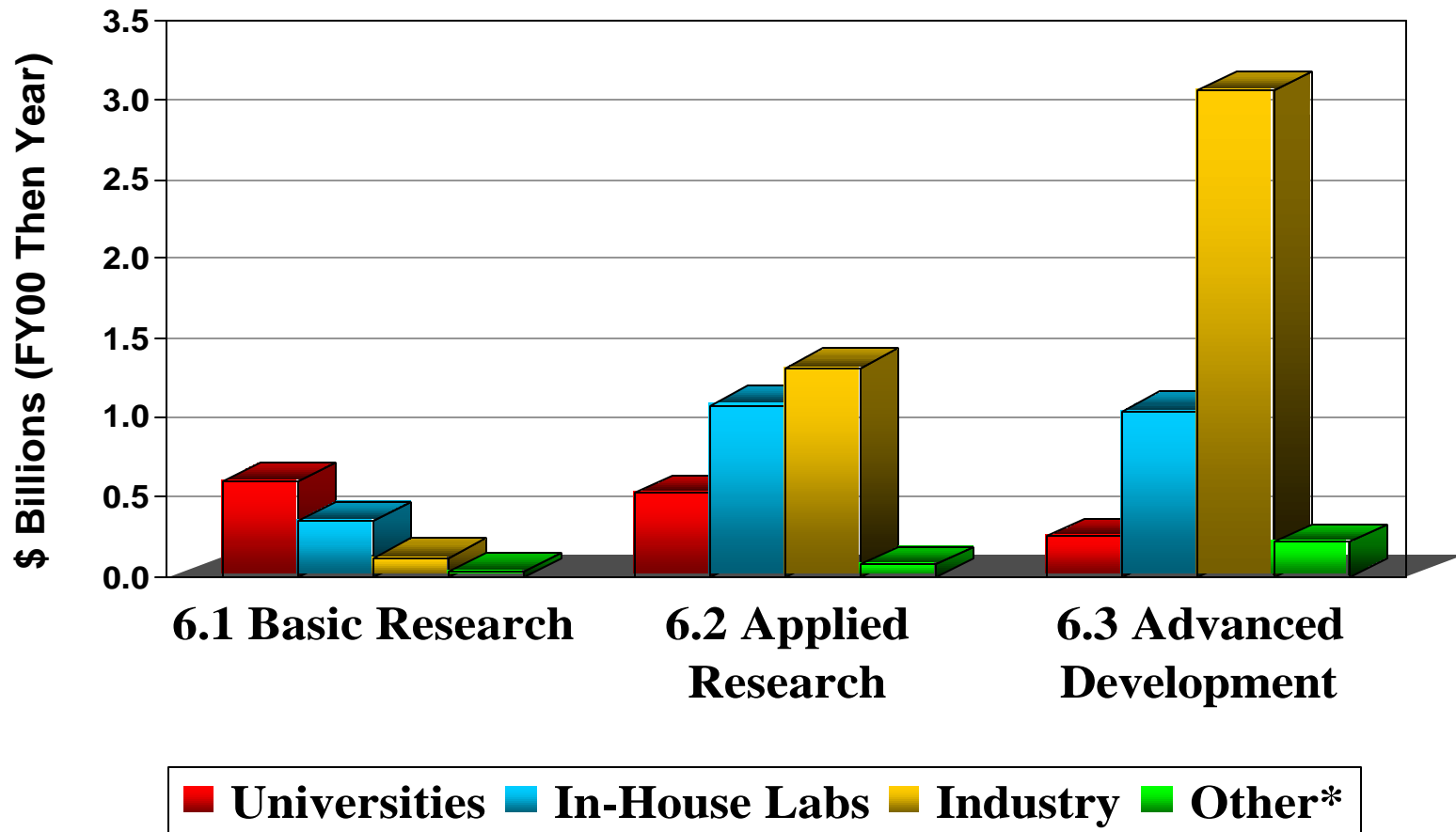
**Maximum National
Security Payoff**

International



Coalition Capability

Recipients of DoD S&T Funds



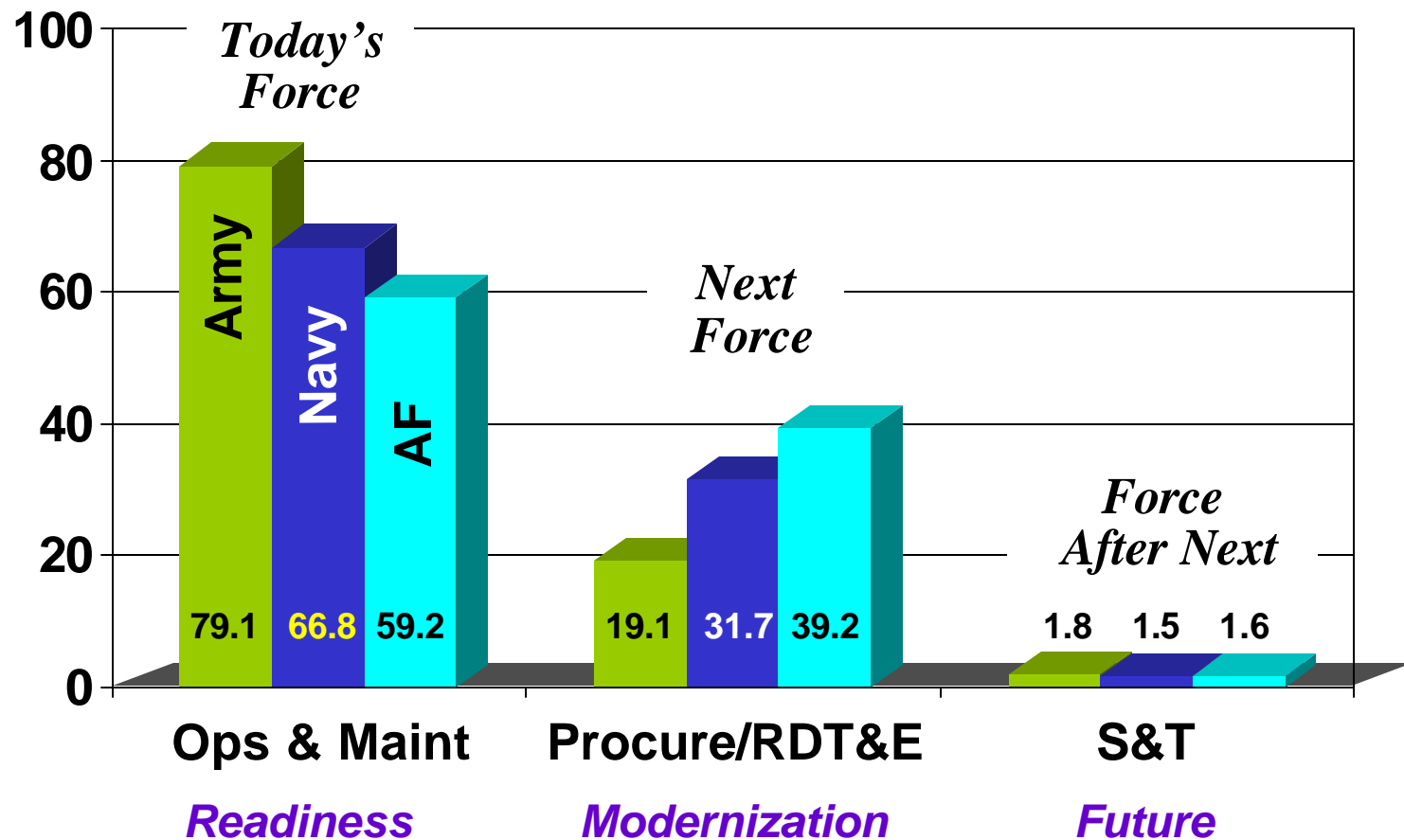
***Includes non-profit institutions, State & local govt., & foreign institutions**

Source: National Science Foundation Report, Volume 48 (FY 2000)

Technology Investment Percent of Overall Budget Request

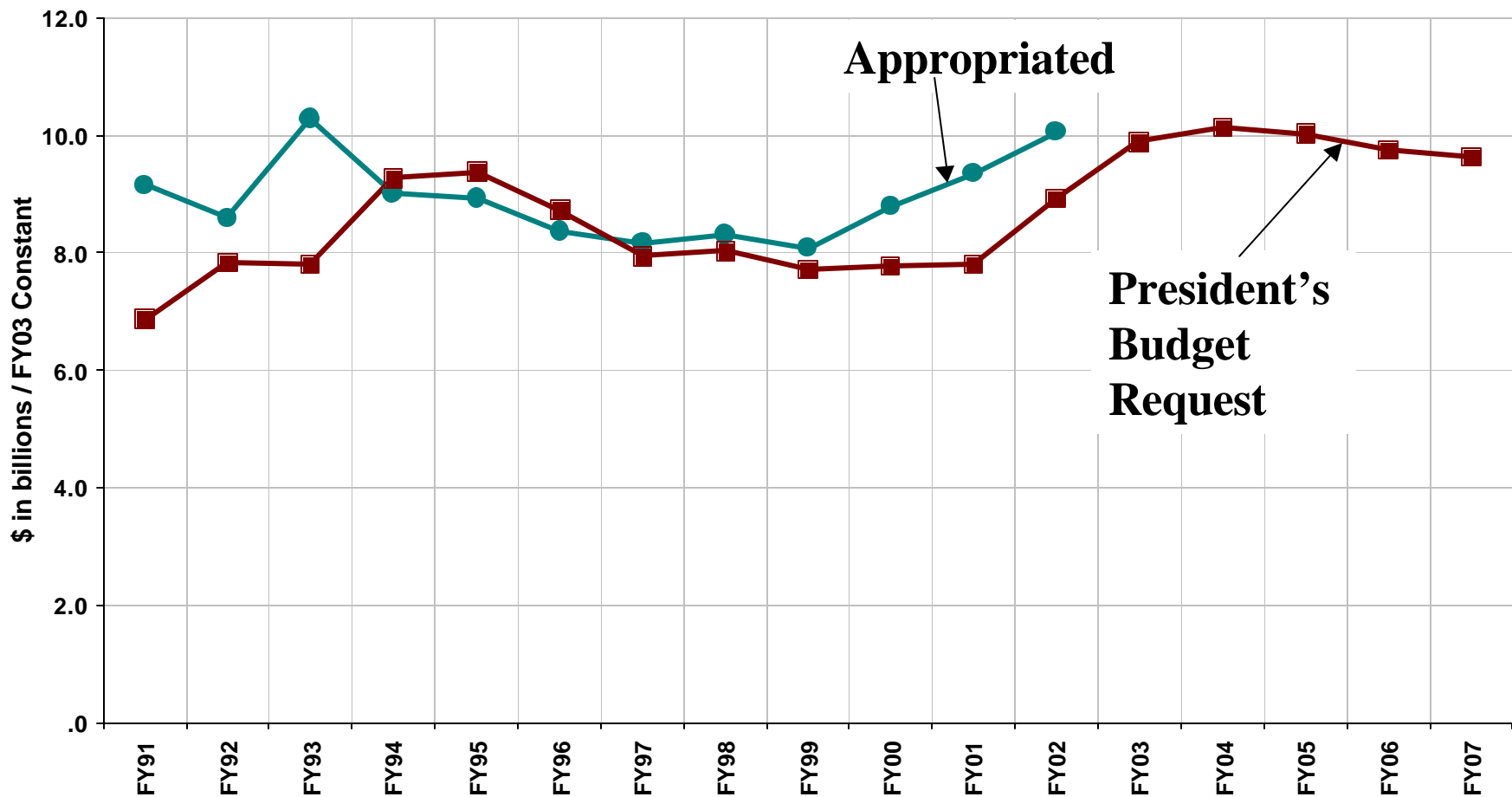


Percent of FY 2003 Budget Request



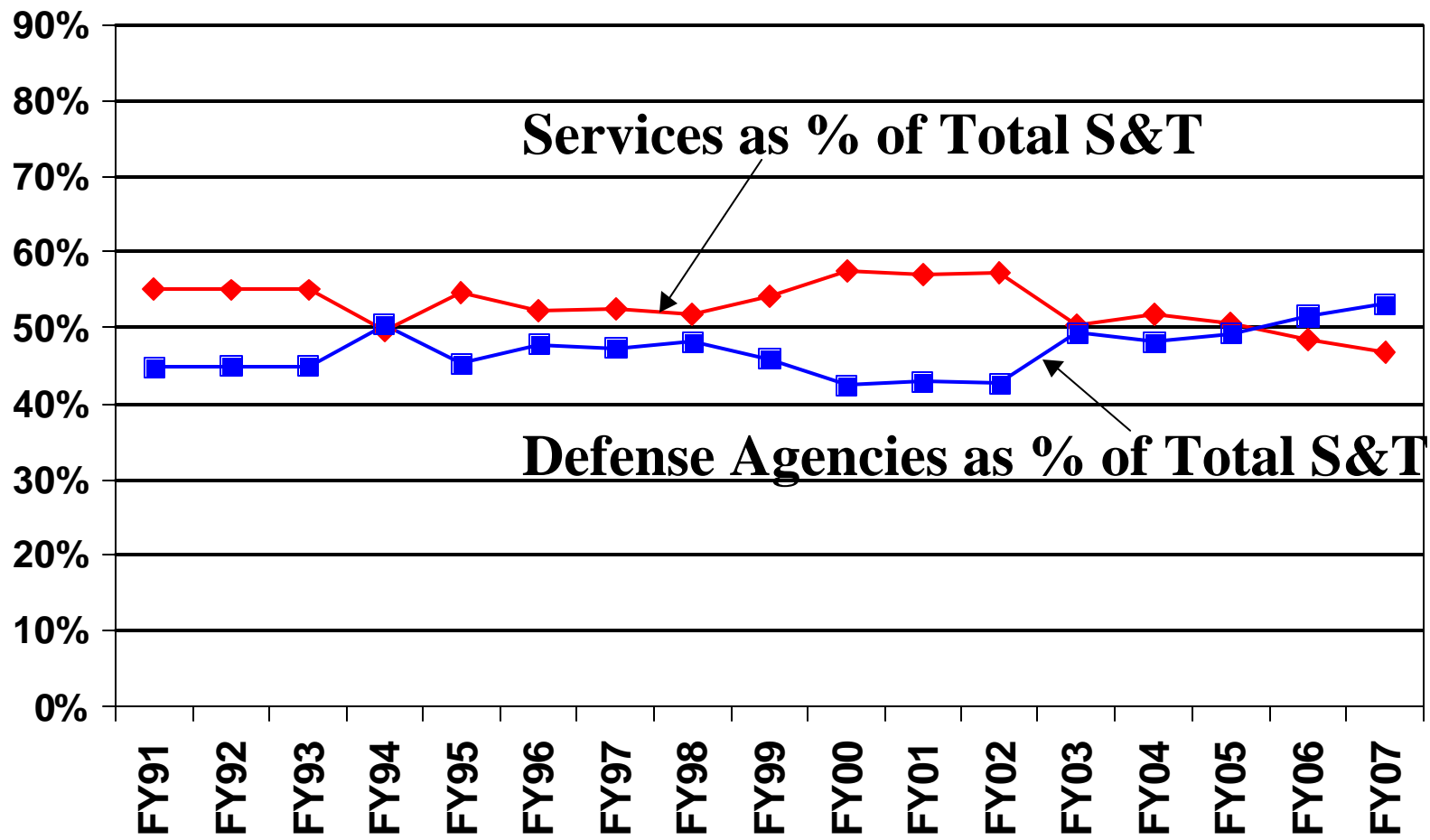
* Includes \$213M allocated to combating terrorism S&T in DoD transfer account

Department of Defense Science & Technology (S&T)

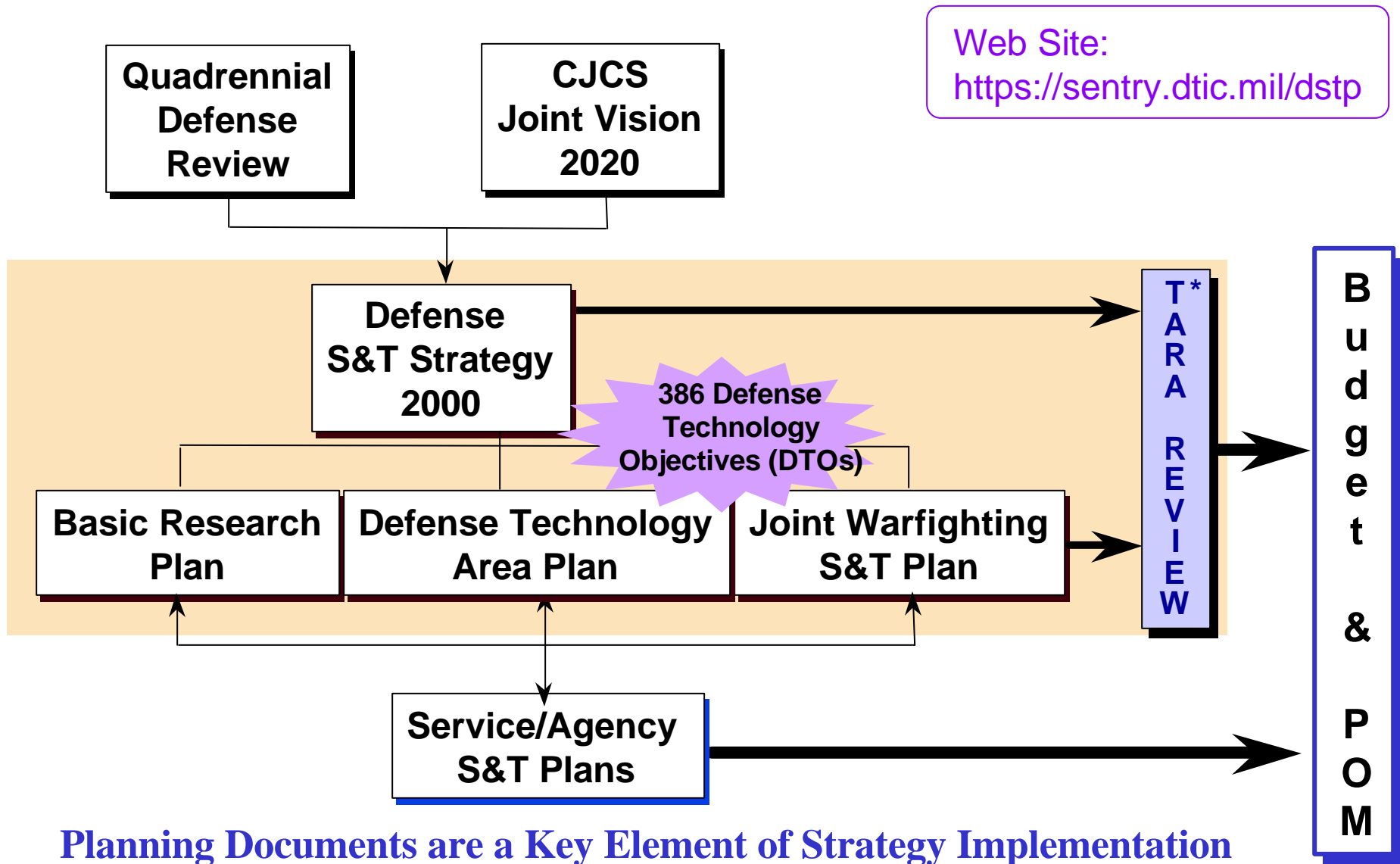


* Includes approximately \$200M allocated to combating terrorism S&T in DoD transfer account

S&T Breakout: Services vs Defense Agencies as a % of Total S&T

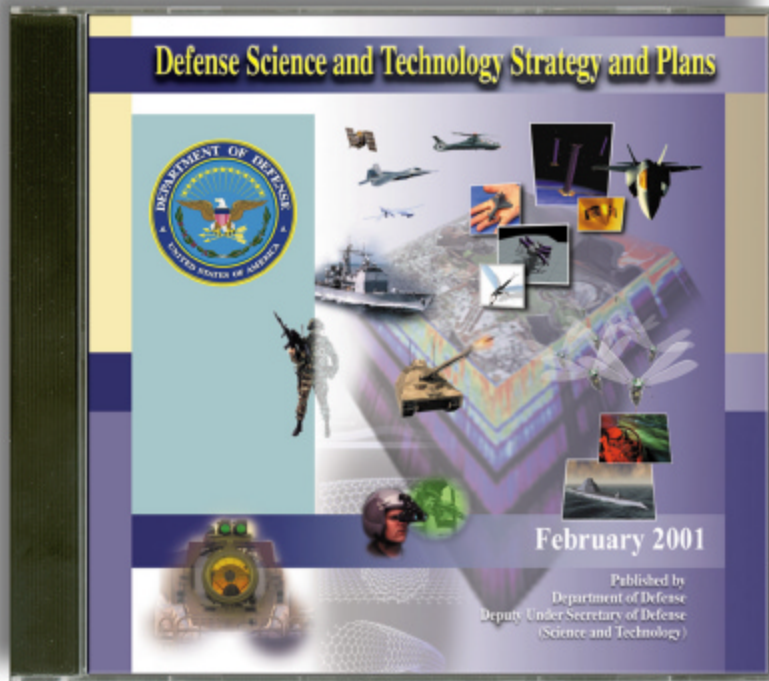


Integrated Annual Defense S&T Planning Process



Planning Documents are a Key Element of Strategy Implementation

S&T Strategy and Plans



Defense Science and Technology Strategy and Plans CD

Defense Science and Technology Strategy and Plans

- *Defense S&T Strategy*
- *Basic Research Plan*
- *Joint Warfighting Science and Technology Plan*
- *Defense Technology Area Plan (DTAP)*
- *Defense Technology Objectives (DTOs) for the JWSTP and DTAP*

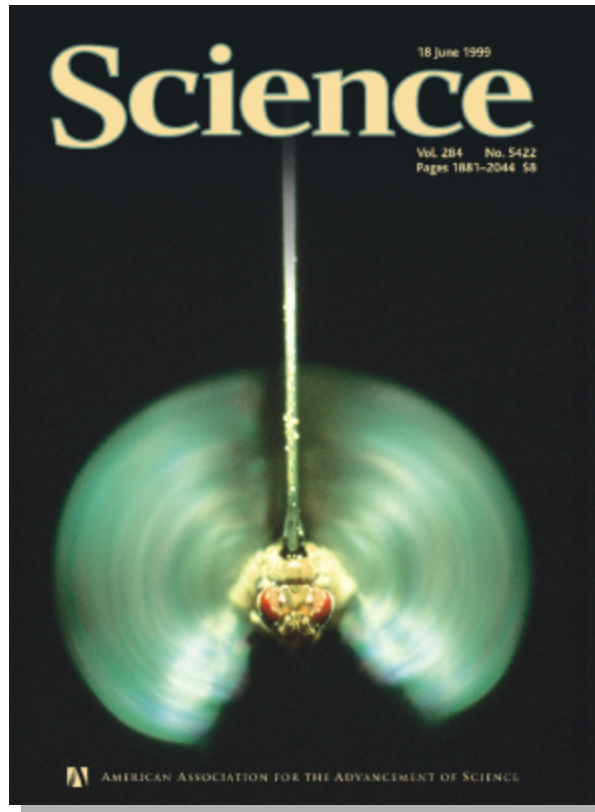
Basic Research Plan (BRP)



BRP-- A strategic plan to link longer term research to broad, revolutionary warfighter capabilities

- **Basic Research Areas**

- Physics
- Chemistry
- Mathematics and Computer Science
- Electronics
- Materials Science
- Mechanics
- Terrestrial and Ocean Sciences
- Atmospheric and Space Sciences
- Biological Sciences
- Cognitive and Neural Science



*A Strategic plan
guiding new
technology
development
built around
Basic Research
Areas*

Defense Technology Area Plan

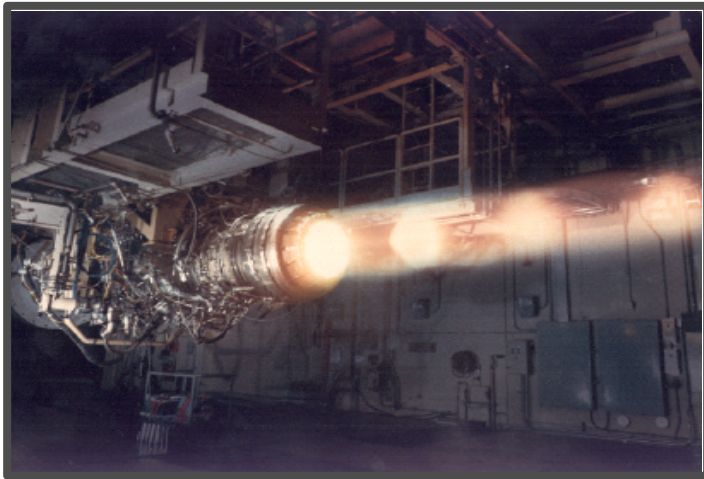


- **Twelve technology focus areas in February 2001 edition:**
 - » **Air Platforms**
 - » **Chemical-Biological Defense**
 - » **Nuclear Technology**
 - » **Information Systems**
 - » **Materials & Processes**
 - » **Weapons**
 - » **BioMedical**
 - » **Battlespace Environments**
 - » **Sensors, Electronics and Electronic Warfare**
 - » **Space Platforms**
 - » **Human Systems**
 - » **Ground & Sea Vehicles**
- **Provides a horizontal perspective across Service and Defense Agency efforts, thereby charting total DoD investment for a given technology area**

Defense Technology Area Plan (DTAP)



- **DTAP -- A detailed plan focusing DoD science on militarily significant technologies in specific functional areas**



Example: DTO AP.08 Fighter/Attack Propulsion

An agreement between the S&T Community and Acquisition Customers

Joint Warfighting S&T Plan (JWSTP)



JWSTP-- Focus to blend emerging technology into warfighter needs



*An agreement
between Joint
Warfighters
and S&T
Community*

Example: DTO E.02 Military Operations in Urban Terrain

Objective: Demonstrate a situation awareness/communications/geolocation capability in restrictive environments.

DUSD (S&T) Priorities 2003



Technical

- **Basic Research**
- **Strategic Initiatives**
 - **National Aerospace Initiative**
 - **Advanced Reconnaissance and Knowledge Systems - C4ISR**
 - **Power and Energy Technologies**
- **QRD Capabilities**

Non-Technical

- **Funding Stability**
- **Technology Transition**
- **S&T Workforce**





QDR Capabilities

- **Critical Transformational Capabilities**
 - **Protect Bases of Operations**
 - **Conduct Information Operations**
 - **Project and Sustain US Forces**
 - **Deny Enemy Sanctuary**
 - **Conduct Space Operations**
 - **Leverage Information Technologies**

Protecting Bases of Operations

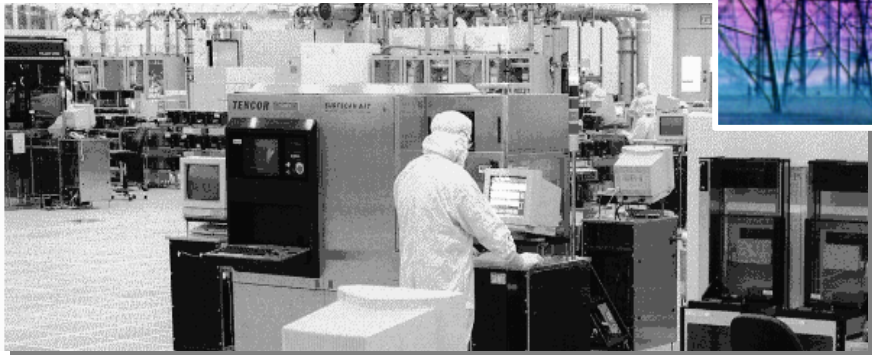
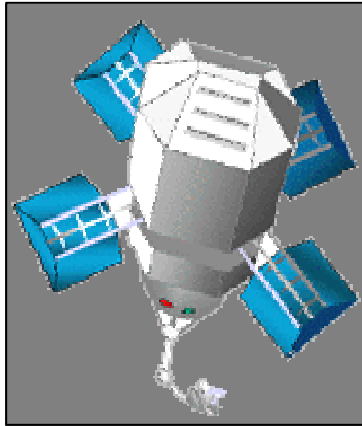
- *Combating Terrorism*
- *Chemical/Biological Defense*
- *Missile Defense*
- *Consequence Management*



Conduct Information Operations



- *Defensive IO and Information Assurance*
- *Offensive IO*



Project and Sustain US Forces



- *Anti-Access Capabilities*

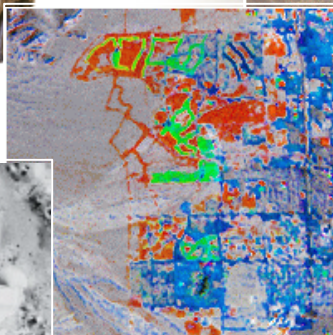
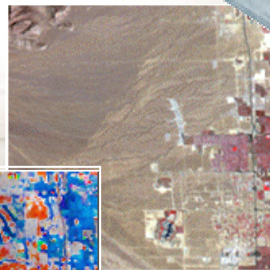
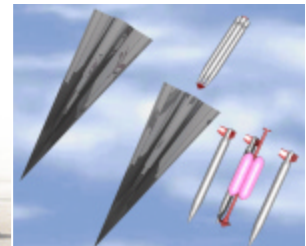
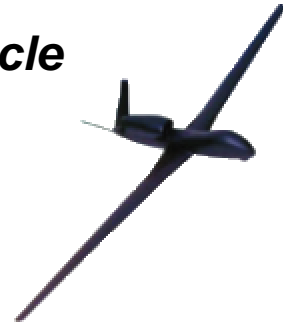




Deny Enemy Sanctuary

Persistent Surveillance, Tracking and Rapid Engagement with Precision Strike

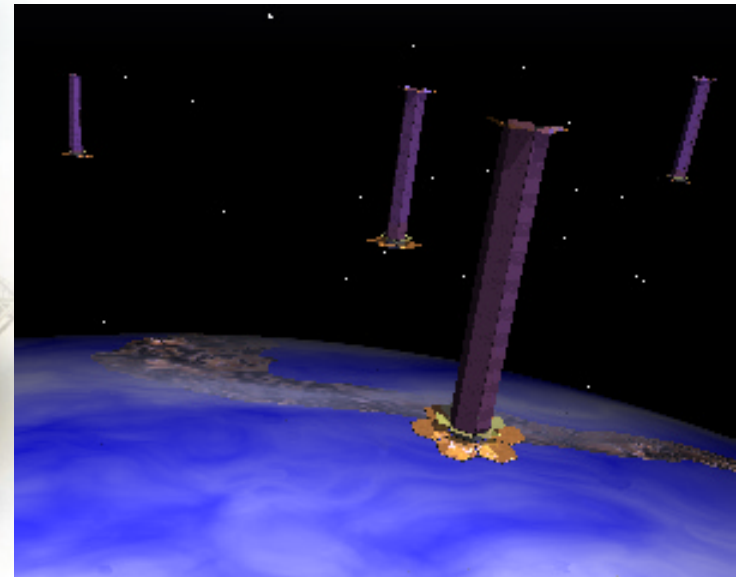
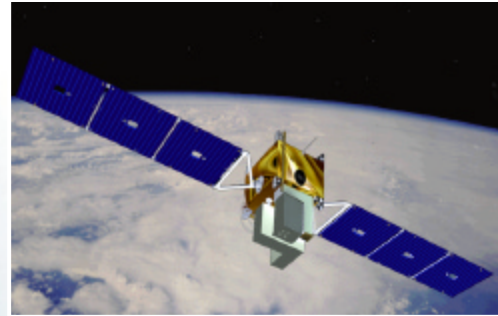
- ***Remote Sensing Unmanned Aerial Vehicle***
- ***Long-Range Precision Strike***
- ***Small-Diameter Munitions***
- ***Defeat Hard and Deeply Buried Targets***
- ***Enhanced C4ISR***



Conduct Space Operations



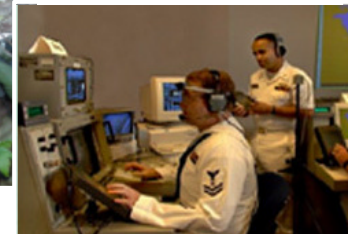
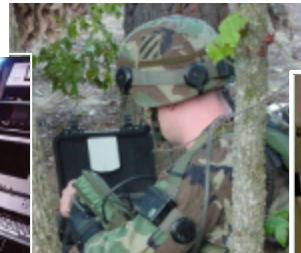
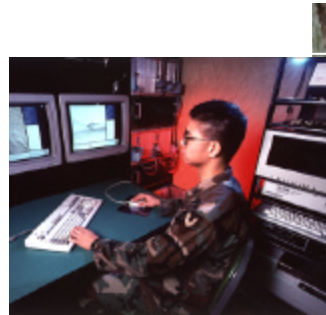
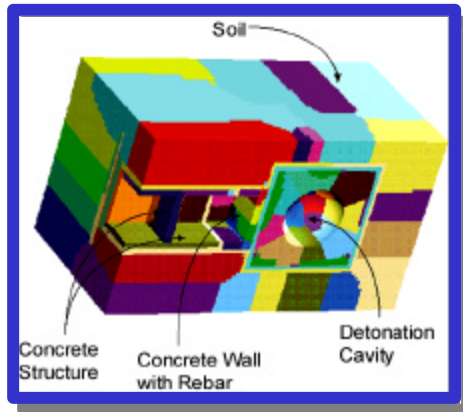
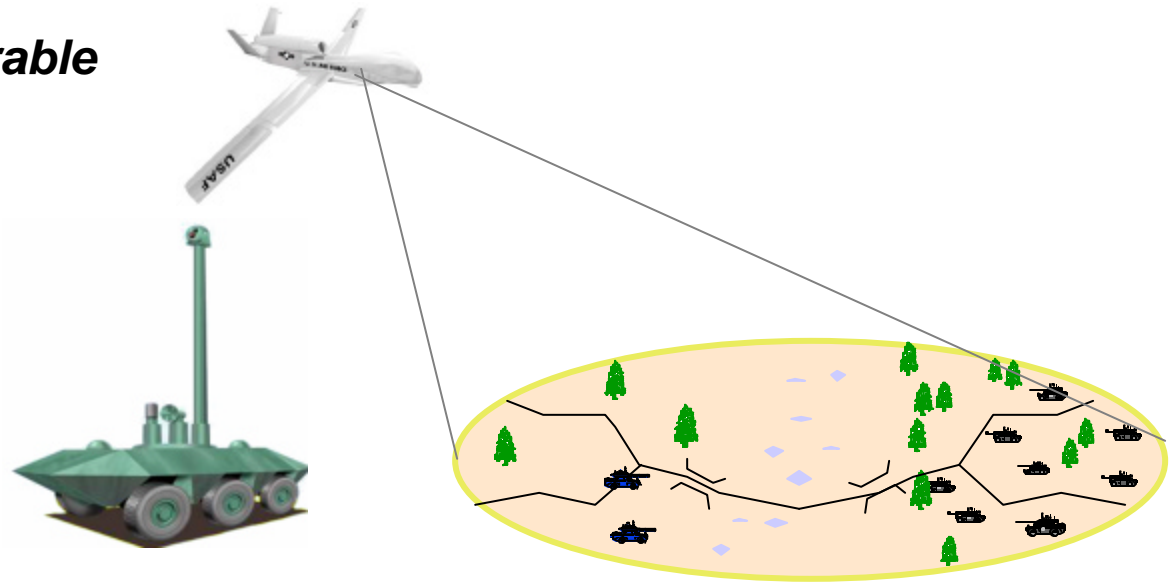
- *Ensure Access to Space*
- *Protect Space Assets*
- *Assure Space Surveillance*
- *Control Space*
- *Sub-Orbital Space Vehicle*



Leverage Information Technologies



- *High-capacity Interoperable Communications*
- *Survivable, Improved, Tactical and Strategic Communications*
- *End-to-end C4ISR*





High Payoff Tech-Push Capabilities

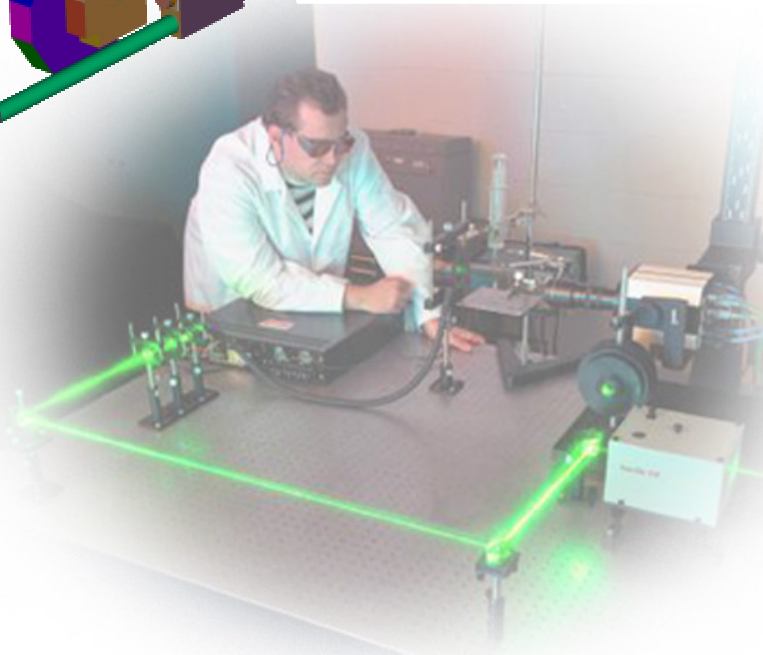
- **High Payoff Implicit Transformational Capabilities**
 - **Increase Lethality Through non-Kinetic Means**
 - **Capitalize On Robotics**
 - **Minimize Logistics Footprint**

Increase Lethality through Non-Kinetic Means



- **Exploit:**

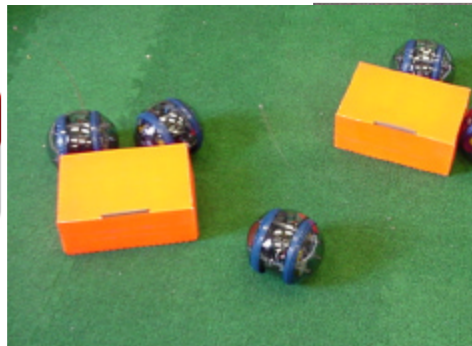
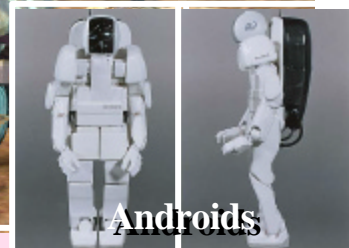
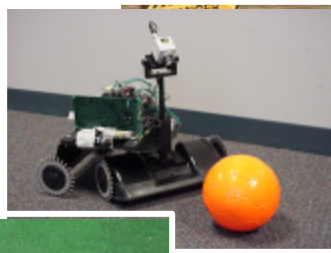
- *High energy lasers*
- *High powered microwaves*



Capitalize on Robotics

Unmanned Systems for Land, Air, Sea, Space, and Underwater

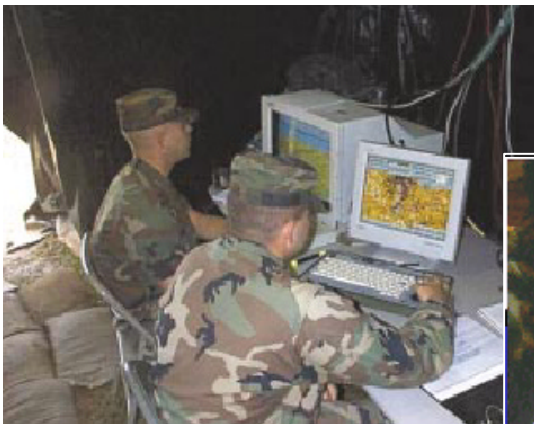
- **Control assets remotely**
- **Miniaturize components**
- **Integrate information**
- **Develop collective behavior**
- **Develop distributed operations**



Minimize Logistics Footprint



- *Advanced Handling and Transportation Systems*
- *Total Asset Visibility*
- *Decision Support Tools*
- *Reduce O&M Requirements*

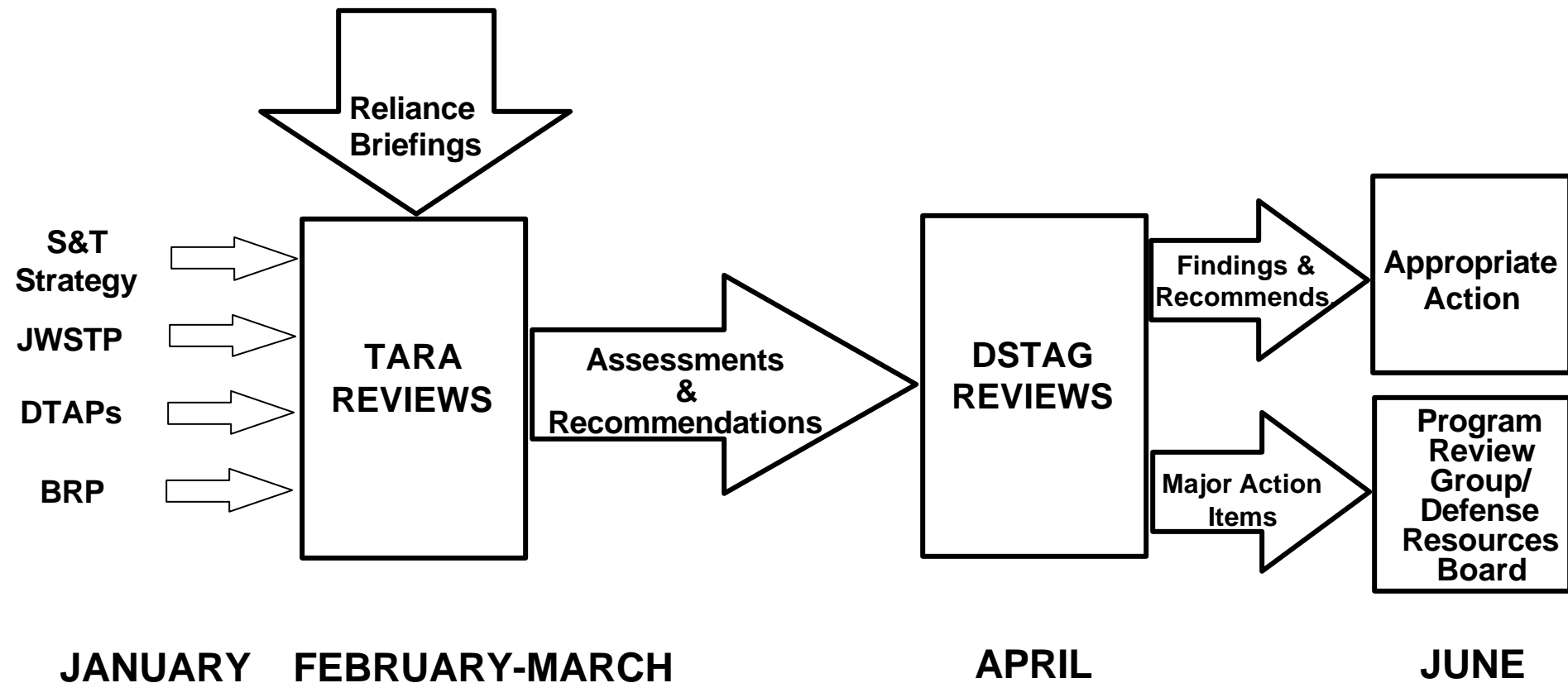


Technology Area Review & Assessment (TARA)



- **Independent review of defense research efforts**
- **World class experts in relevant field**
- **Week long reviews by technology area panels**
- **Panel members from within and outside DoD**
 - **2/3 of members from outside of DoD**
- **Assess programs against:**
 - **Defense Technology Objectives (DTOs)**
 - **Other Criteria (e.g., Service Unique Needs, Tech. Oppor.)**
 - **Affordability**

Technology Area Review and Assessment (TARA) Process



A Focus on Tomorrow's Possibilities



Technical Superiority is
Critical for National Security.

In peace, it provides deterrence;

In crisis, it provides options;

In war, it provides an edge."

Defense Science and Technology Strategy
May 2000

